

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 9, 10, 12, 14-15, 31-32, 38-39 are presently active in this case.

In the outstanding Office Action, Claims 9, 10, 15 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 2002/0066532 to Shih et al.; Claim 12 was rejected under 35 U.S.C. 103 (a) as being unpatentable over Shih et al. in view of US 4,357,387 to George et al. and US 6,724,140 to Araki; Claims 31 and 38 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shih et al. in view of US 2005/0150866 to O'Donnell et al., US 4,310,390 to Bradley and US 6, 120,955 to Tokutake et al.; Claim 14 was rejected under 35 U.S.C. 103(a) as being unpatentable over Shih et al. in view of O'Donnell et al., Bradley et al. and Tokutake et al. and further in view of US 5,534,356 to Mahulikar et al.; Claim 32 was rejected under 135 U.S.C. 103(a) as being unpatentable over Shih et al. in view of O'Donnell et al. and further in view of US 5,892,278 to Horita et al.; Claim 39 was rejected under 35 U.S.C. 103(a) as being unpatentable over Shih et al. as applied to Claims 9 and 10 in view of O'Donnell et al.; Claims 9, 10 and 12 were provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over co-pending application no 10/773,245 in view of Shih et al..

Turning now to the merits, the present invention, as defined in claim 9, is directed to an internal member of a plasma processing vessel including a film on a base material. The base material is a target to be protected and the film is formed above the base material to thereby protect the base material. The film is a multilayer film formed by thermal spraying of ceramic. The film includes a main layer and a barrier coat layer. The barrier coat layer is located between the main layer and the base material (i.e., the base material, barrier coat layer and main layer are

stacked sequentially in that order). In an effort to prevent a processing gas and a cleaning fluid from permeating into a space between the base material and the main layer, the film layer is sealed by a resin. Specifically, the barrier coat layer which is not exposed to outside is sealed by a resin. Therefore, even if the outside layer (the main layer) covering the barrier coat layer is ruptured, the inside layer (the barrier coat layer) can remain unruptured and the barrier function can be maintained. Applicants' Claim 9 is intended to cover these features.

Specifically, Claim 9 recites that the internal member of a plasma processing vessel includes a base material and a film formed on a surface of the base material. The film has a main layer formed by thermal spraying of ceramic and a barrier coat layer formed of ceramic including an element selected from the group consisting of B, Mg, Al, Si, Ca, Cr, Y, Zr, Ta, Ce and Nd. Also recited is that the barrier coat layer is an intermediate layer formed between the main layer and the base material, and that the barrier coat layer is a thermally sprayed film. Still further, at least parts of pores inside the barrier coat layer are sealed by a resin provided at a lower portion of the barrier coat layer including a surface contacted with the base material and not including a surface contacted with the main layer.

Paragraph [0068] of Applicants' specification explains that it is preferable to provide the seal portion within the film, but not on the surface of the film in order to avoid degradation of the seal and which can cause forming air pores in the film again.

The Office Action cites the new reference to Shih et al. as teaching the sealing feature. Specifically, the Office Action takes the position that the substrate 10, or base metal 20, ceramic barrier coating 28, ceramic barrier layer 24 and coatings 30a and 30b of Shih et al., respectively correspond to the claimed base material (e.g. 71), barrier coat layer (e.g. 79), resin (e.g. 79a) and main layer (e.g. 78), respectively, as recited in Claim 9 and disclosed in Applicants specification. Applicants' submit, however, that the resin 79a of Claim 9 is provided at ***a lower portion of the barrier coat layer (e.g. 79) including a surface contacted***

***with the base material*** (e.g. 71) and ***not including a surface contacted with the main layer*** (e.g. 78).

By contrast, referring to paragraph [0048] of Shih et al., the coating 30a is applied on the substrate 20, ceramic barrier layer 24 or ceramic barrier coating 28 corresponding to Fig. 5, 6 and 7 of Shih et al., respectively. Among those layers, since substrate or base metal has no pores, the constitution of Fig. 5 is different from that of the present invention. In addition, referring to paragraph [0048] and Fig. 6 and 7 of Shih et al., the coating 30a is applied to the upper surface of the ceramic barrier layer 24 or the ceramic barrier coating 28 thereby being received interstitially by the pores and interstices of the ceramic barrier layer 24 or the ceramic barrier coating 28 from the upper surface thereof. Thus, the coatings cannot be formed only at a lower portion of the ceramic barrier layer 24 or the ceramic barrier coating 28 including a surface contacted with the base metal 20 and not including a surface contacted with the ceramic barrier layer 24 or the ceramic barrier coating 28.

Further, while resin 79a sealed at the lower portion of the barrier coat layer 79 of the present invention is formed by sealing treatment, the coating 30a of Shih et al. is formed by applying the selected monomeric anaerobic mixture on the ceramic barrier layer 24 or the ceramic barrier coating 28. Thus, it is respectfully believed that resin 79a sealed at the lower portion of the barrier coat layer 79 of the present invention is a different element from the coating 30a of Shih et al. and not disclosed therein.

Therefore, Shih et al. does not disclose that “the barrier coat layer is a thermally sprayed film and at least parts of pores inside the barrier coat layer are sealed by a resin provided at a lower portion of the barrier coat layer including a surface contacted with the base material and not including a surface contacted with the main layer,” as recited in amended Claim 9. Moreover, it would not be obvious to modify Shih et al. to provide this feature. As noted above, it is the present inventors who recognized that it is preferable to

provide the seal portion within the film, but not on the surface of the film in order to avoid degradation of the seal and which can cause forming air pores in the film again. The cited references do not suggest this advantage.

Further, Applicants note that the secondary references to George et al., Araki, Bradley et al., Tokutake et al., Mahulikar et al., O'Donnell et al. and Horita et al. are cited for teachings in dependent claims and do not correct the deficiencies of and Kosuge as distinguished above.

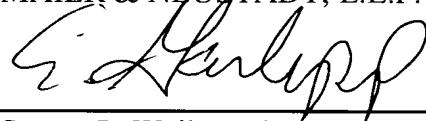
For the reasons discussed above, Claim 9 patentably defines over the cited reference. As Claims 10, 12, 14, 15, 31, 32 and 38, directly or indirectly depend from claim 9, these claims also patentably define over the cited references for the reasons discussed above.

Finally, with respect to the provisional rejection of Claims 9, 10 and 12 for obviousness double patenting over Claims 5, 17-20 of co-pending Application No. 10/773,245 (US PG Pub. No. 2005/0103275), Applicants submit that the arguments distinguishing Claim 9 above also overcome the double patenting rejection. Alternatively, Applicants wish to address this rejection at such time as one of the co-pending applications issues as a patent and the rejection becomes non-provisional.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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